

TOILET TANK ADAPTER

The present invention generally relates to pressure flush systems or units and is more particularly directed to apparatus for coupling a pressurized toilet flush unit within a toilet tank.

The pressure flush unit of a pressure flush toilet may be replaced or upgraded. In these situations, the toilet tank outlet may have an opening greater than the diameter of a spud extending from the pressurized toilet flush unit.

The present invention provides for a coupling which enables interconnection between a pressurized toilet flush unit and a toilet tank outlet having a greater diameter than the pressurized toilet flush units spud.

SUMMARY OF THE INVENTION

A coupling for enabling interconnection between a pressurized toilet flush unit and a toilet tank outlet in accordance with the present invention generally includes a first gasket for providing a seal between a mounting flange surrounding a threaded spud, which depends from the pressurized toilet flush unit, and a toilet tank floor.

An adapter provides for centering the spud in the toilet tank outlet and a spud nut centers the adapter. In this manner, a watertight seal is provided.

More particularly the adapter includes a collet with an inside diameter sized for snugly receiving the threaded stud and an outside diameter sized for snugly fitting the tank outlet. The adapter further includes a central flange extending from the collet and having a diameter greater than a diameter of the toilet tank outlet.

BRIEF DESCRIPTION OF THE DRAWINGS

The advantages and features of the present invention will be better understood by the following description when considered in conjunction with the accompanying drawings in which:

Figure 1 is a perspective view of a pressurized toilet flush unit as it may be installed in the toilet tank through the use of the coupling in accordance with the present invention;

Figure 2 is a cross sectional view of the coupling in accordance with the present invention generally illustrating a gasket, an adapter, a spud nut, and a sponge gasket all of which will be hereinafter described in greater detail;

Figure 3 is a perspective view of the adapter shown in Figure 2;

Figure 4 is a cross sectional view illustrating the coupling in accordance with the present invention with the pressure toilet flush unit secured to a toilet tank floor; and

- 5 Figure 5 is an alternative embodiment of the present invention in what the adapter and spud nut are unitary.

DETAILED DESCRIPTION

- 10 With reference to Figures 1 and 2, there is shown a coupling 10 enabling interconnection between a pressurized toilet flush unit 12 and a toilet tank 14 having an outlet 16 for communication with a toilet bowl, not shown.

- 15 The pressurized toilet flush unit, or system, 12 may be, for example, identical to that set forth in U.S. Patent Application Serial No. 10/719,931 for "Pressure Assisted Dual Flush Operating System" filed November 20, 2003. This patent application is incorporated herewith in its entirety for a
20 description of the pressurized toilet flush unit for which the coupling 10 in accordance with the present invention finds utility.

- 25 In some toilet tanks 14 the outlet 16 has a greater diameter than a threaded spud depending from the pressurized toilet flush unit 12. While a flange 24 is provided on the spud 22 centering of the spud 22 within the outlet and proper sealing is not effected thereby.

The coupling 10 in accordance with the present invention provides this sealing and centering function. The coupling generally includes a gasket 30 for providing a seal between the flange 24 and a floor 34 of the tank 14 an adapter 38, see
5 also Figures 3 and 4, is provided for centering the spud 22 within the opening 16.

The adapter 38 may include a collet 40 having an inside diameter sized for snugly receiving the threaded spud 22 and
10 an outside diameter for snugly fitting the tank outlet 16.

A flange 44, centered on the collet 38, and extending radially therefrom is provided for engaging an outside surface 46. The adapter is preferably formed from any suitable
15 material such as plastic or metal.

A spud nut is provided for rotation about the threaded spud 22 to center the adapter within the opening 16. A sponge gasket 56 provides a seal between the tank 14 and a bowl, not
20 shown.

Figure 4 is a cross sectional view of the coupling 10 in accordance with the present invention showing the pressurized flush unit 12 coupled to the tank 14.

25

Figure 5 shows an alternative embodiment of the present invention in which the spud nut 54 and adapter 38 are formed on one piece, i.e. unitary.

Although there has been hereinabove described a specific toilet tank adapter in accordance with the present invention for the purpose of illustrating the manner in which the invention may be used to advantage, it should be appreciated
5 that the invention is not limited thereto. That is, the present invention may suitably comprise, consist of, or consist essentially of the recited elements. Further, the invention illustratively disclosed herein suitably may be practiced in the absence of any element which is not
10 specifically disclosed herein. Accordingly, any and all modifications, variations or equivalent arrangements which may occur to those skilled in the art, should be considered to be within the scope of the present invention as defined in the appended claims.

15